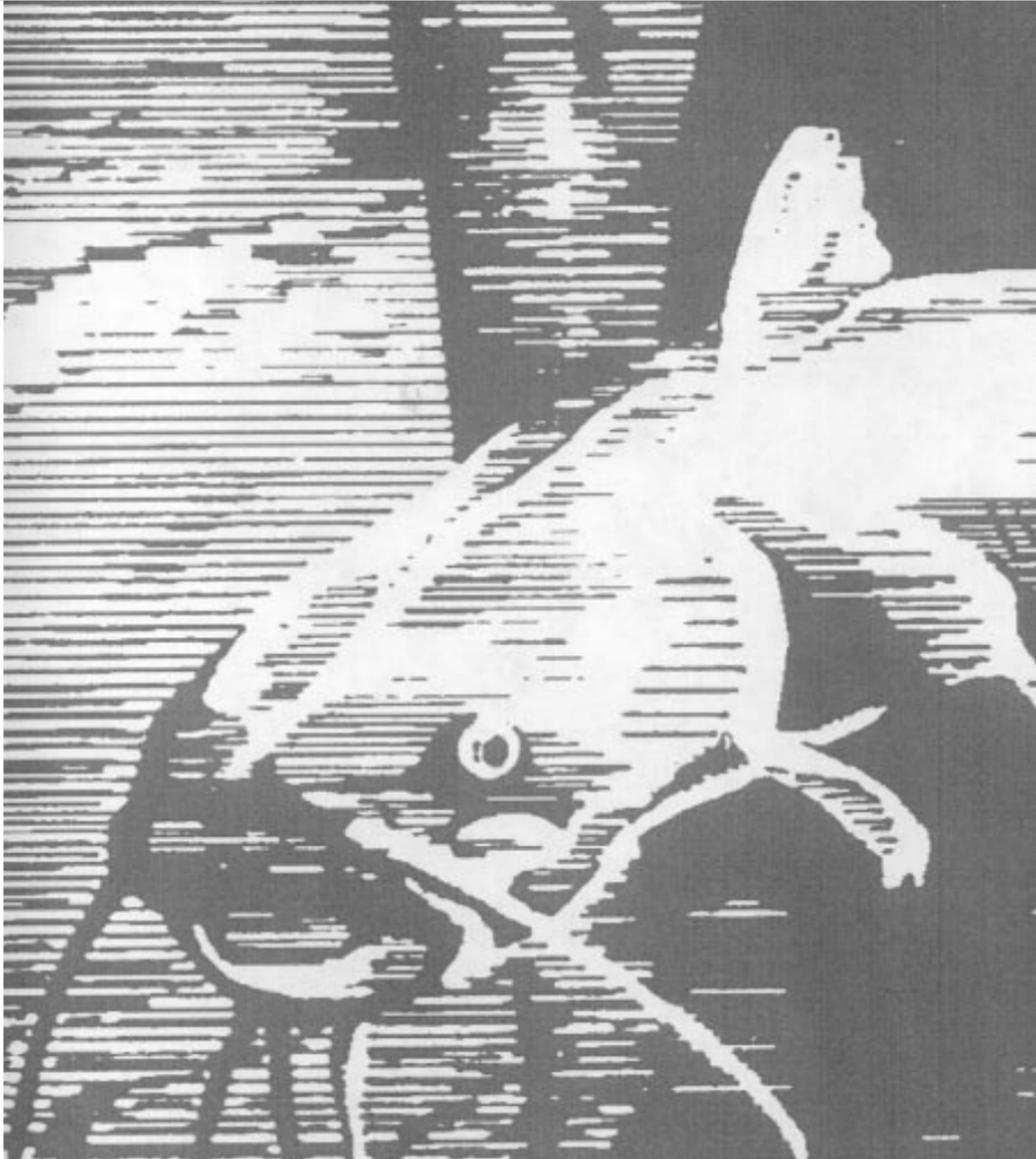


Southern
Regional
Aquaculture
Center



November 1995

Microbiological Rinse Technique: Basis for a New Quality Control Program



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Recent television and print media stories questioning the safety and quality of the food supply have caused consumers to demand assurances that the foods they eat are healthful and wholesome. Few food commodities have been spared, either from media scrutiny or the need to improve consumer confidence. Fortunately, farm-raised catfish products have enjoyed a positive image among traditional consumers and have not been implicated in any foodborne illness cases.

Market expansion of the catfish industry is evidence that consumers trust the quality and wholesomeness of catfish products. Not only are processors marketing farm-raised catfish over a wider geographic area, they are developing new products to address specific consumer preferences.

Consumers want to be assured about the wholesomeness of their foods, and at the same time, the catfish industry wants to continue expanding into new markets. It is apparent that both groups require technical information and assistance. The new microbiological rinse technique can play an important role in any processing-level quality assurance program, and can address the technical needs of both consumers and industry.

Why microbiological testing is important

Some catfish processors set their own bacterial specifications, and use bacterial test results to monitor their own in-house quality assurance programs. An increasing number of domestic customers (such as major grocery and restaurant chains) require bacterial testing of the fish and seafood products they purchase. Many overseas health authorities (most notably, Canada, Japan, and the European Community) require that statements of bacterial content accompany food shipments that cross their borders.

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What microbiological testing means to the customer

Whether farm-raised catfish is purchased from a fish and seafood retail market, a grocery store meat and seafood counter, or ordered at a restaurant, in-plant microbiological monitoring will help to ensure that catfish consumers receive products that meet or exceed both public health and industry safety and quality specifications.

Using the microbiological rinse technique

The collection and evaluation methods presented in this brochure are based on a nondestructive rinse technique developed by the Department of Fisheries and Allied Aquacultures and the Department of Animal and Dairy Sciences at Auburn University. The number of bacteria per unit of catfish product surface area recovered by the new rinse technique compares very favorably to the number of bacteria recovered from catfish by “traditional” (AOAC) sampling techniques. The rinse technique for recovering surface bacteria from commercially processed catfish products is as follows:

- Place the catfish product in a sterile 1 liter plastic bag;
- Determine catfish product weight and add an equal amount (ml/gram) of Butterfield’s phosphate buffer with 0.05% polysorbate;
- Shake the bag 30 times in an arc of 30 degrees for 15 seconds, then return the catfish product to the processing line;
- Transfer 10 ml of the rinse suspension into a sterile tube and pack in ice;
- Transport the tubes of suspension to the laboratory and begin bacterial analyses within 24 hours.

For purposes of processing-level quality assurance efforts, it is most advantageous for the catfish product rinse suspensions to be subjected to the following bacterial tests:

- Total Aerobic Plate Count (TAPC) - A measure of all aerobic bacteria (regardless of type or source) found on the surface of the catfish product. TAPC counts can be used to estimate overall catfish product quality.
- Coliforms and *E. coli* - Indicators of the level of cleanliness under which the fish were processed.

How the results can be used

Once the results of the bacterial tests are recorded, a written report with an interpretation of the results can be returned to the participating processor. The bacterial test results can, in turn, be used by processing plant managers to:

- Assure compliance with public health standards;
- Be sure their products meet industry quality standards;
- Stay abreast of any emerging bacterial problems; and,
- Assure customers of the bacterial safety and quality of their products.

The Alabama Catfish Quality Assurance (ACQA) Program

A new quality assurance program based on the aforementioned rinse technique has evolved as a voluntary effort in which farm-raised catfish that are processed in participating facilities are routinely tested for specific bacteria to ensure production and distribution of wholesome, high-quality catfish products. The ACQA Program is operated by Auburn University Fisheries Department staff members located at the Alabama Fish Farming Center (AFFC) in Greensboro, Alabama, and is jointly funded by the Alabama State Catfish Committee (which represents the state's catfish farmers) and participating catfish processors.

Further reading

Consult the following publications to learn more about fish and seafood nutrition, preparation, preservation, quality, and safety.

Perkins, B.E. 1995. *Preparation and preservation of Alabama seafood*. Alabama Cooperative Extension Service Circular ANR- 921. MASGP-95-003.

USDA Extension Service. 1994. *Aquaculture Quality Assurance: Become Involved*. Available through your State Cooperative Extension Service or Sea Grant Marine Advisory Service.

Catfish Farmers of America. 1993. *Catfish quality assurance*. Mississippi Cooperative Extension Service Publication 1873.

Perkins, B.E. 1993. *Alabama seafood facts*. Alabama Cooperative Extension Service Circular ANR-833. MASGP-93-014.

Perkins, B.E. 1991. *Seafood safety*. Alabama Cooperative Extension Service Circular ANR-578. MASGP-91-003.

This publication was supported in part by a grant from the United States Department of Agriculture, Southern Regional Aquaculture Center, Number CSREES 93-38500-8393, sponsored jointly by the Cooperative State Research, Education, and Extension Service and the Cooperative Extension Service.